Comments on specific questions raised in the NTIA's NOI

1. The IANA functions have been viewed historically as a set of interdependent technical functions and accordingly performed together by a single entity. In light of technology changes and market developments, should the IANA functions continue to be treated as interdependent? For example, does the coordination of the assignment of technical protocol parameters need to be done by the same entity that administers certain responsibilities associated with root zone management? Please provide specific information to support why or why not, taking into account security and stability issues.

May I express my gratitude to the US Government for the manner in which they have overseen the IANA functions contract over the years and thank them for the opportunity of submitting these comments.

On the 7th April 2011 it will be 42 years since the publication of the first RFC and 40 years since Jon Postel first collected, archived and edited the RFC series and so this review of the IANA functions contact is both timely and very appropriate.

Jon was a charming, softly spoken administrator whom those of us who knew him held in high regard for his principled and methodical working practices which subsequently steered the development of the "Internet's Secretariat" that simply recorded data and operated on a fully decentralised subsiduarity model.

In parallel with RFC editing and publication, came the need for the coordination and conservation of protocol and port number assignment which Jon offered to undertake as part of the Internet Secretariat function. Subsequently, IP address assignment and then Root Zone management, including the administration of .US and .INT, needed a Secretariat and once again Jon offered his services.

Special mention should be made of Jake Feinler and Joyce K. Reynolds who worked with Jon assisting as RFC Editors and Vint Cerf who continues to foster the development of end to end services without single points of failure or capture.

Consequently, completely separate and unrelated Secretariat services performed by Jon for the benefit of the Internet community became to be undertaken under one name, the Internet Assigned Numbers Authority ("IANA"). There is little or no technical interdependence between the various functions, which are distinct autonomous elements.

The technical contractor responsible for interfacing with TLD Registry Managers for Name Server changes as well as the distribution and name management of the Root Zone was a company called Network Solutions (NSI), who also managed the .COM, .NET and .ORG, and the service called InterNIC was created for that purpose. The InterNIC services, provided by NSI, enabled a Top Level Domain Registry to electronically and securely update their name server records in the Root Zone with the changes visible worldwide at the next zone generation (then occurring 4 times per day).

Jon's untimely death on the 16th October 1998 triggered the need for a review of the IANA function and who would perform the Secretariat function. Whilst Jon's sudden departure was a quantum loss to the community, the day to day operations of InterNIC services to the TLD Registry community were not impacted as NSI continued to deliver Root Zone services until early 2000 when the automated InterNIC service stopped and all TLD Name Server changes were (and currently are) manually processed by ICANN staff.

So to answer the question: Does the coordination of the assignment of technical protocol parameters need to be done by the same entity that administers certain responsibilities associated with root zone management?

The answer is clearly “no”, as there is a precedent for InterNIC Root Management services being operated by third parties; IETF/IAB have shown they can determine who edits and publishes RFCs, .ARPA, Ports and Protocols, and; the Number Resource Organisation could handle IP address allocation. However, over the last eleven years the IANA functions contract has been operated by one organisation, ICANN, in a stable and robust manner.

Consequently, if there is to be a change to the status-quo, for whatever reason, be that the avoidance of market capture or to avoid single points of failure; any and all advantages in splitting the IANA functions contract needs to be clearly made and understood from the outset so to avoid user confusion and deliver improvements to service efficiencies.

Stability of operation is of paramount importance, particularly with reference to InterNIC services, and the emphasis needs to be on efficient, accountable, authenticated service delivery to the Registry Manager community.

2. *The performance of the IANA functions often relies upon the policies and procedures developed by a variety of entities within the Internet technical community such as the IETF, the RIRs and ccTLD operators. Should the IANA functions contract include references to these entities, the policies they develop and instructions that the contractor follow the policies? Please provide specific information as to why or why not. If yes, please provide language you believe accurately captures these relationships.*

IANA in its capacity as secretariat has historically accurately recorded information presented to it and has been void of policy making preferring to take instruction from the impacted user community. IANA has avoided disputes by traditionally referencing the legal and cultural framework of the country in which the service operator is based. Consequently there is clear separation between operations and policy and the ccTLD Registry in particular frequently determines and enforces its registration terms and conditions by provision of contracts with its customers, having the basis in law of the country of in which the Registry is located.

In the last decade there has been a move by ICANN to obtain agreements by leveraging the IANA function and inviting such contracted parties to help formulate Policies under which it delivers IANA service to such customers. Whilst ICANN's Bylaws and its submission to the USG (No 40SBNT067020) Clause 12.5 “does not authorize the contractor to make substantive changes in established policy associated with the performance of the IANA functions” - there has been “mission creep” such that ICANN is trying to have contracted parties impact the manner in which non-contracted parties obtain IANA services.

Consequently, the IANA contractor should be expected to respect and respond accordingly to decisions of the TLD Registry manager, which are made through nationally developed processes and in accordance with the laws of the jurisdiction of the Registry. This criteria accords with the US Government’s commitment in the “U.S. Principles on the Internet's Domain Name and Addressing System” and in its support for the WSIS Tunis Agenda.

3. *Cognizant of concerns previously raised by some governments and ccTLD operators and the need to ensure the stability of and security of the DNS, are there changes that could be made to how root zone management requests for ccTLDs are processed? Please provide specific information as to why or why not. If yes, please provide specific suggestions.*

In 2003, I was Chair of the International Working Group that proposed the full (secure and authenticated) automation of the IANA function giving Registry Managers the option of either full subsidiarity responsibility for managing their entry in the Root Zone, or enabling a third party such as ICANN, to check the details of the requested changes to the Root Zone. With either model structures were in place to ensure it was possible to verify the processes had been correctly followed.

The E-IANA project as it became known (http://www.wwtld.org/eiana/) had a number of distinct element.

I) Develop a the Requirements Document, endorsed by a significant number of TLD Registry operators from around the world; http://www.wwtld.org/eiana/Requirements_for_Automated_Management_of_TLD_IANA_Database.PDF
II) have an open call for the development of software to facilitate the e-IANA, http://www.wwtld.org/eiana/e-IANA-Introduction.html and;
III) provide software, (http://www.wwtld.org/eiana/20050930.e-IANA-System-PatrycjaWegrzynowicz-AndrzejBartosiewicz.pdf), funding (http://www.icann.org/en/correspondence/wein-to-twomey-17aug06.pdf) and training to IANA staff for the implementation of e-IANA. The then manager of IANA, Mr David Conrad, was very supportive of the e-IANA project which led to software and funding being made available in 2005 to ICANN. (http://kierenmccarthy.co.uk/2006/09/19/icann-given-190000-aid-for-iana/)

However, it appears that the functionality of the e-IANA has been impaired and renamed to "Root Zone Management with a new set of semi-automated ICANN "control" features developed by a subset of the ccTLD community http://c*cnso.icann.org/workinggroups/ccNSO-**iana**-rzm-tests-05mar08.pdf*

It is worth recalling that prior to ICANN's involvement in the IANA, the InterNIC was an automated process where Registry managers could update their name servers in a secure and authenticated manner within hours.

There is therefore an opportunity for a twin track approach, full automation for those Registries technically competent Registry operators who want to directly interface with the IANA, and partial automation for those Registry operators that prefer to have manual/human oversight of change requests.

The reason why full automation of the Root Zone is of increasing importance is that timely name server changes are critical to DNS resolver stability and with the recent deployment of DNSSEC signed TLDs at the Root Zone, it is increasingly important that key roll-over, including key roll-back can be undertaken in a secure and authenticated manner within minutes – otherwise TLDs could be "off-air" if corrupted or bad data is held in the Root Zone.

4. *Broad performance metrics and reporting are currently required under the contract. Are the current metrics and reporting requirements sufficient? Please provide specific information as to why or why not. If not, what specific changes should be made?*

The current performance metrics and reporting requirements are sufficient however as the publication of the Report is restricted, it is not possible to comment if the content of any Performance Report addresses the specified performance metrics.

The open publication of the performance reports would greatly increase transparency and accountability to the community.

5. *Can process improvements or performance enhancements be made to the IANA functions contract to better reflect the needs of users of the IANA functions to improve the overall customer experience? Should mechanisms be employed to provide formalized user input and/or feedback, outreach and coordination with the users of the IANA functions? Is additional information related to the performance and administration of the IANA functions needed in the interest of more transparency? Please provide specific information as to why or why not. If yes, please provide specific suggestions.*

As referenced in question 3, the immediate restoration of a fully automated InterNIC styled service where an authenticated secure and automated interface to updating the Root Zone data for ccTLD Registry Managers – as specified in the e-IANA documentation - would improve the overall customer experience and accountability to our respective user communities significantly.

IANA, and ICANN in particular, must ensure it does not usurp national operating environments and national laws of the country in which the Registry is incorporated by the formation and forced implementation of perceived “global” policies with parties who have not explicitly consented to follow such Policies.

6. *Should additional security considerations and/or enhancements be factored into requirements for the performance of the IANA functions? Please provide specific information as to why or why not. If additional security considerations should be included, please provide specific suggestions.*

The implementation of both full and partial automation of Root Management services provided by-IANA would enhance security both in the communication between the Registry and the IANA, but also the resiliency of the service the TLD registry provides to its community.

Further procrastination in the implementation of the automation process should be avoided. Partial automation where third parties can interfere with a particular IANA entry, does respect the subsidiarity principle and full automation should be an achievable objective for those Registry Managers that want it. Restoring the path to full IANA automation should be commenced as soon as possible.

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